

CLAIMS

1. Fuel cell arrangement with

- a fuel cell stack (12) which encompasses several fuel cells (10) and
- a first (14) and a second end plate (16) which border the fuel cell stack (12) on the ends of the stack,

characterized in that

there is at least one energy transmission means (18) which transmits a first force to the first end plate (14) in the direction of the second end plate (16) and a second force to the second end plate (16) in the direction of the first end plate (14), elastic means (20) being involved in the energy transmission.

2. Fuel cell arrangement as claimed in claim 1, wherein

- the fuel cell stack (12) and the end plates (14, 16) have at least one through opening (22) which extends essentially perpendicular to the end plates,
- wherein in at least one through hole (22) there is one energy transmission element (24) which projects beyond the upper and lower end plate,
- wherein the energy transmission element (24) on the area projecting beyond the first end plate has a first energy absorption area (26) or is connected to one which is supported directly or indirectly on the first end plate (14), and
- wherein the energy transmission element (24) on the area projecting beyond the second end plate has a second energy absorption area (28, 30) or is connected to one which applies a force to the second end plate (16) by way of the elastic means (20).

3. Fuel cell arrangement as claimed in claim 2, wherein

- the energy transmission element (24) has an essentially cylindrical segment (32) which is located partially within the through opening (22),
- wherein the first energy absorption area is made as a cover plate (26) of the cylindrical segment (32) and has a greater radius than the through opening (22) through the first end plate (14), and

- wherein the second energy absorption area is an end ring (28, 30) which surrounds the cylindrical segment (32) and which is connected to the cylindrical segment (32), and the end ring (28, 30) can be made in several parts.

4. Fuel cell arrangement as claimed in claim 3, wherein the elastic means are made as a spring (20) which surrounds the cylindrical region and which is supported on the end ring (28, 30) which surrounds the cylindrical segment (32).

5. Fuel cell arrangement as claimed in claim 4, wherein the spring (20) transmits force to the second end plate (16) by its being supported on a movable thrust ring (34) which surrounds the cylindrical segment (32) of the energy transmission element and which is supported on its side facing away from the spring on the second end plate (16).

6. Fuel cell arrangement as claimed in one of claims 2 to 5, wherein the energy transmission element (24) consists at least predominantly of electrically insulating material.

7. Fuel cell arrangement as claimed in one of claims 2 to 5, wherein

- the energy transmission element (24) consists at least predominantly of metal and
- wherein there are insulation means (36) for insulating the energy transmission element (24) against electrically conductive areas of the fuel cell stack (12) or the end plates (14, 16).

8. Fuel cell arrangement as claimed in one of claims 3 to 7, wherein the end ring (28, 30) is axially adjustable so that the force applied by the elastic means (20) can be varied.

9. Fuel cell arrangement as claimed in one of the preceding claims, wherein the fuel cell arrangement comprises a housing (38) which has heat insulation (40) on its inside.

10. Fuel cell arrangement as claimed in claim 9, wherein the energy transmission element (24) is elastically connected to the housing (38).

11. Fuel cell arrangement as claimed in claim 10, wherein the elastic connection of the energy transmission element (24) to the housing (38) comprises a cup spring (42) which is

connected to the energy transmission element (24) and which is supported on the outside of the housing (38).

12. Fuel cell arrangement as claimed in claim 11, wherein

- the end ring (28, 30) is made in two parts and
- wherein the connection of the cup spring (42) to the energy transmission element (24) takes place by pressing the cup spring (42) in between the parts of the end ring (28, 30).

13. Fuel cell arrangement as claimed in one of claims 9 to 12, wherein the elastic means (20) for transmitting force to the end plates (14, 16) is located outside the housing (38).

14. Fuel cell arrangement as claimed in one of claims 9 to 13, wherein the areas (44) surrounding the fuel cell stack within the housing (38) are filled with fibrous insulation material.

15. Fuel cell arrangement as claimed in one of claims 2 to 14, wherein there are three through openings (22) and three energy transmission elements (24) assigned to these three through openings.

16. Device for mounting a fuel cell arrangement on a housing (38), especially a fuel cell arrangement as claimed in one of the preceding claims, wherein the fuel cell arrangement is connected to the housing (38) by way of an element (24) which is connected to the fuel cell stack (12) using elastic means.